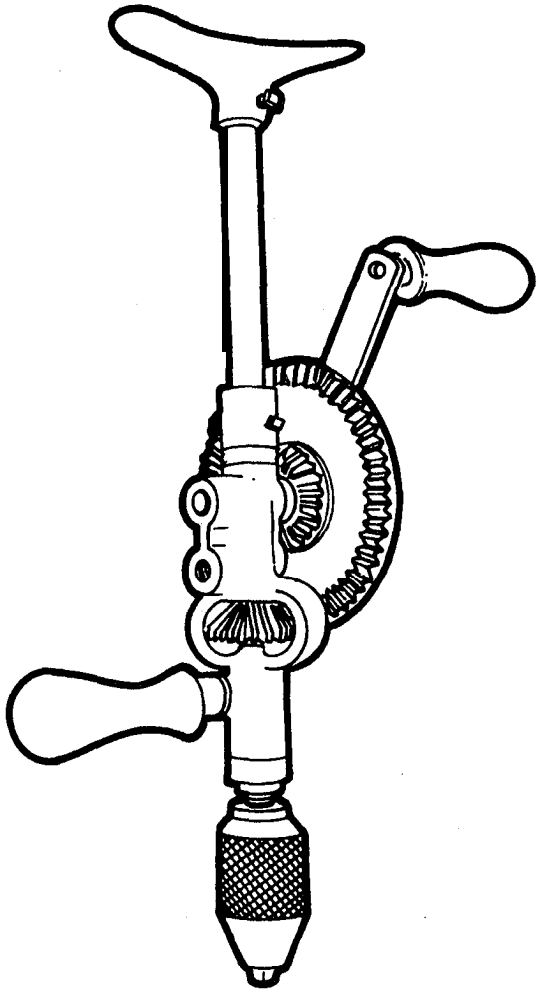
Chapter 23 MANUAL DRILLS

HOW TO CHOOSE AND USE THEM

The “Types and Uses” section provides you with a list of some of the types of drills. These pages should help you select the right drill to do the job.

The “Using” section tells you how to use the drill to perform the desired function. The “Care” procedures tell you how to care for the items.



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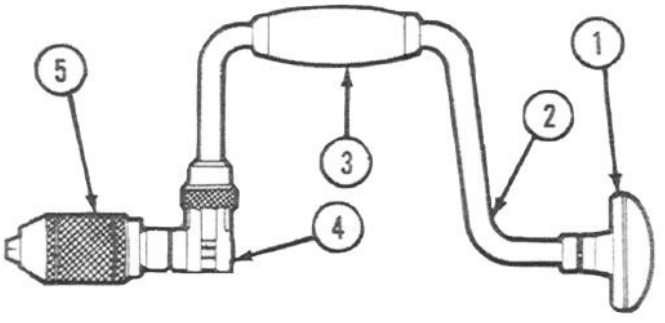
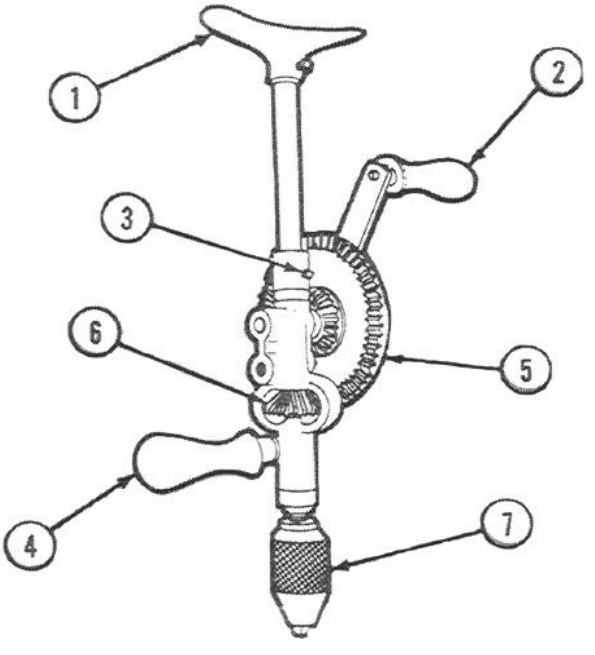
TYPES AND USES

BRACE DRILL



The brace drill is made up of the following parts: head (1), crank (2), crank handle (3), ratchet mechanism (4), and chuck (5). The brace is used to drill holes in wood and with a screwdriver bit, remove and install screws.

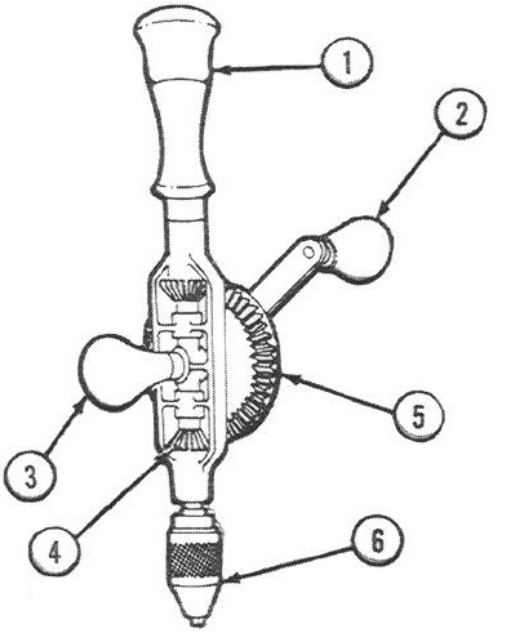
BREAST DRILL



The breast drill is made up of the following parts: breast plate. (1), drive handle (2), speed shifter (3), side handle (4), speed gears (5), pinion gears (6), and chuck (7). The adjustable breast plate provides a base for the user to lean against while using the drill. The speed shifter provides a means of selecting high speed or low speed. This allows the operator to start a hole at slow speed, 1:1 ratio, preventing marring of the surface, then shifting to high speed, 3-1/2:1 ratio, to finish drilling the hole. To change from low speed to high speed, move the drive handle and speed gears from the bottom hole to the top hole. High speed position is illustrated. Some drills have a slot instead of two holes.

The side handle provides a way to steady the drill and insure that the bit is boring a straight hole. The speed gears determine the speed at which the drill rotates. They are connected through linkage to the pinion gears. The pinion gears turn the chuck and drill. The breast drill is used to drill holes in wood, plastic, concrete, and small gage sheet metal.

HAND DRILL

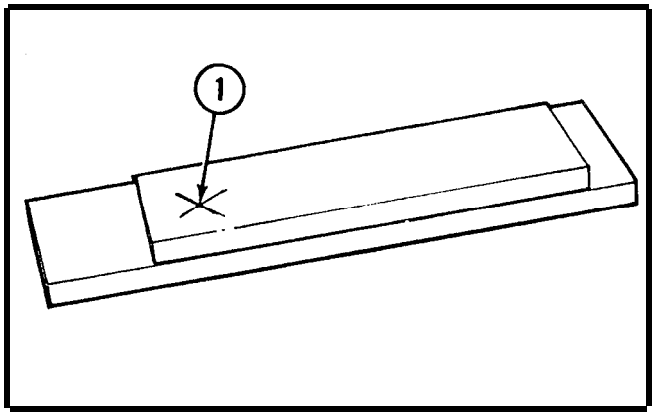


The hand drill is made up of the following parts: handle (1), drive handle (2), side handle (3) pinion (4), gear wheel (5) and chuck (6). The handle provides a storage area for drill bits. The side handle may be used to steady the drill when drilling in soft wood. The pinion turns the chuck and drill. Through mechanical linkage, the gear wheel transfers the driving force from the drive handle to the chuck. Hand drills are used to drill holes in wood and sheet metal.

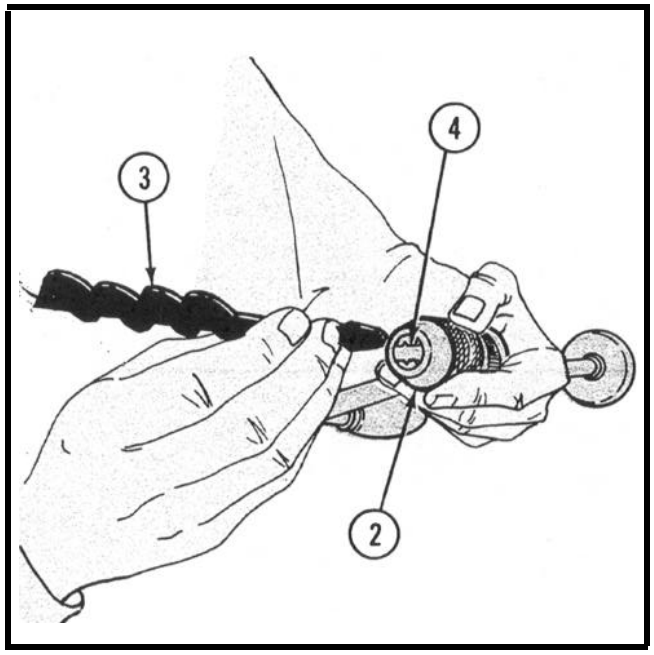
USING A BRACE DRILL

NOTE

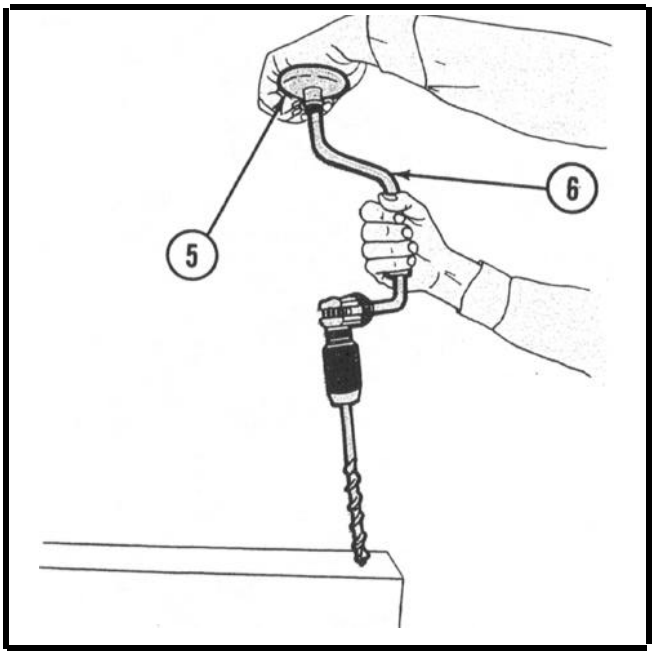
The following procedure is for a bit of a fixed size from 1/4 inch up to a 1 inch maximum.



1 Mark (1) with a pencil where hole is to be drilled.



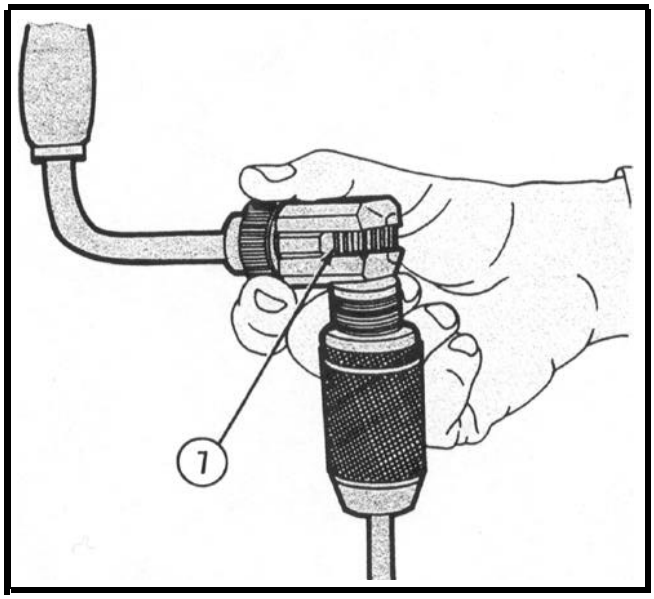
2 Open chuck (2) and insert bit (3) between jaws (4). Tighten chuck (2), securing bit (3).



3 Center bit over pencil mark. Push down on head (5) and turn crank (6) until bit goes through the board.

NOTE

Ratchet mechanism (7) may have to be set.



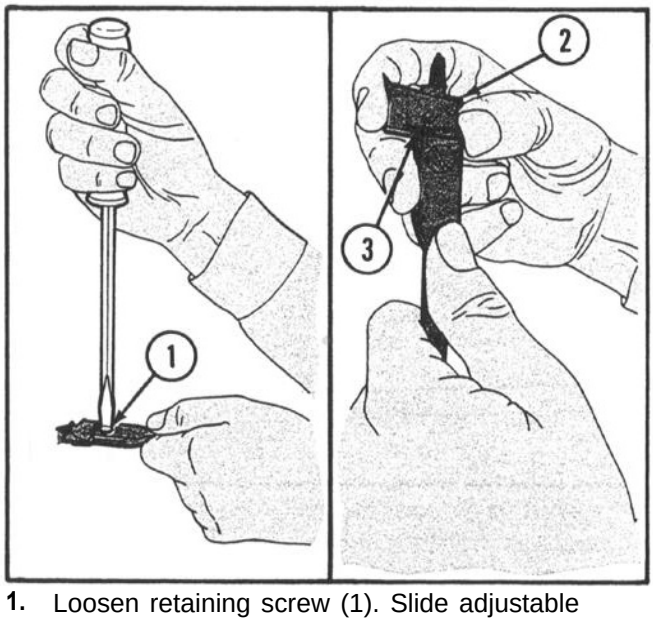
4 Reverse the ratchet mechanism (7), then turn crank and pull up on head to remove bit.

5 Open chuck and remove bit. Close chuck.

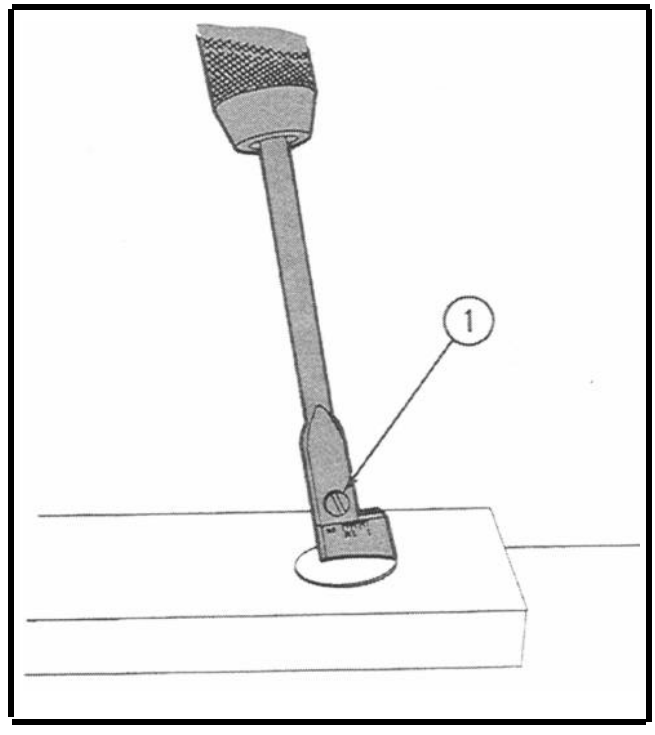
USING AN EXPANSIVE BIT

NOTE

Expansive bits are available in two sizes, one from 5/8 inch to 1-3/4 inches and the other from 7/8 to 3 inches.



1. Loosen retaining screw (1). Slide adjustable blade (2) to the desired width using built-in scale (3) or a 6-inch machinist's rule.



2. Tighten retaining screw (1) and refer to "USING A BRACE" steps 1 through 5, page 23-3.

CARE OF MANUAL DRILLS

Apply a light coat of oil to all metal surfaces. With a rag, clean gear teeth of dirt, wood and metal shavings and apply a light coat of oil. Hang manual drills on a rack or store in a safe, dry place.